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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/809,577	03/15/2001	Menachem Levononi	YOR920010163US1	5893

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EXAMINER

PHAM, THOMAS K

ART UNIT	PAPER NUMBER
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2121

12

DATE MAILED: 08/31/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/809,577

Applicant(s)

LEVANONI ET AL.

Examiner

Thomas K Pham

Art Unit

2121

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

***Response to Amendment***

1. Applicant's petition request to withdrawn finality of the rejection of the Office action mailed 12/31/2003 has been received. This petition is being treated as a request to withdraw an improper Final rejection. Applicant's request is granted. A new action on the merits appears below.
2. Claims 1-21 are presented for examination.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-2, 6-7 and 10-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,195,921 ("Truong") in view of U.S. Patent No. 6,301,964 ("Fyfe") and further in view of U.S. Patent No. 5,790,256 ("Brown").

**Regarding claims 1, 11, 14 and 21**

Truong teaches a computerized method of at least one of designing, constructing, and adjusting an orthodic comprising: mounting said pressure sensors in a joint-enclosing device (col. 6 lines 51-66, "FIGS. 6 and 7 are ... flame retardant performance"); transmitting the data produced by said sensors during actual operation of said joint-enclosing device worn by a specific individual (col. 6 lines 3-10, "the conventional shoe with ... a 3.5 volts battery 2"); receiving said sensor

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signals for analysis by a computer (col. 5 lines 65-67, "The information can deliver ... web-site services 450 or mailing"). Truong does not teach mounting the acceleration sensors in a joint-enclosing device; creating a stress-and-acceleration map based on said sensor-based data; and creating a virtual orthodic (model) for support and comfort based on stress-and-acceleration map. However, Fyfe teaches mounting the acceleration sensors in a joint-enclosing device (col. 9 lines 4-9, "Two accelerometers ... facilitate data generation") for the purpose of measuring biomechanic parameters such as force of impact and gait sway to correct the problem of off-angle feet. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the acceleration sensors of Fyfe with the system of Truong because it would provide for the purpose of measuring biomechanic parameters such as force of impact and gait sway to correct the problem of off-angle feet. Furthermore, Brown teaches creating a stress-and-acceleration map based on said sensor-based data (col. 18 lines 13-18, "one or more default screen ... reach by the user"); and creating a virtual orthodic (model) for support and comfort based on stress-and-acceleration map (col. 18 lines 21-25, "Next, the foot analysis ... or selection information") for the purpose of analyzing feet relates to the processes of prescribing or selecting an orthotic. It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the virtual model of Brown with the system of Truong because it would provide for the purpose of analyzing feet relates to the processes of prescribing or selecting an orthotic.

**Regarding claims 2 and 17**

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Truong teaches using at least one of temperature, moisture, and skin conductivity sensors which are correlated with a worn orthodic (col. 8 lines 38-52, "The circuitry of the ... shoe and circuit board 86").

**Regarding claim 6**

Truong, Fyfe and Brown do not teach using non-linear techniques to optimize orthodic. "Official Notice" is taken for both the concept and advantages of using non-linear technique for optimizing a model is well known and expected in the art. U.S. Publication No. 2002/0072828 of Turner et al. teaches using non-linear techniques for optimizing a model (abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that the non-linear technique could be used for optimizing a model.

**Regarding claims 7 and 20**

Similar to claim 6 above, it would have been obvious to one of ordinary skill in the art at the time of the invention that the neural networks could also be used for optimizing a model as shown in Turner et al (page 7, paragraph 62).

**Regarding claim 10**

Truong teaches the design of the virtual orthodic subject to internal or external constraints (col. 5 lines 57-62, "The assembled shoe ... infrared light-receiving unit 380").

**Regarding claim 12**

Truong teaches at least one of: constructing a physical orthodic based on the virtual orthodic, and adjusting a physical orthodic based on the virtual orthodic (col. 5 lines 49-60, "a podiatric analysis system ... to use by any individual").

**Regarding claim 13**

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Truong teaches using data from the virtual orthodic to construct a physical orthodic (col. 6 lines 3-7, “the conventional shoe ... a custom-made orthotic”).

**Regarding claim 15**

Brown teaches calculating a virtual orthodic model based on the stress-and acceleration map (col. 18 lines 21-25, “Next, the foot analysis ... or selection information”).

**Regarding claim 16**

Truong teaches using data from said virtual orthodic model as a basis to at least one of construct and adjust a physical orthodic for a user (col. 5 lines 49-60, “a podiatric analysis system ... to use by any individual”).

**Regarding claim 18**

Truong teaches data is received from a recording device associated with said sensors (col. 5 lines 63-65, “a portable infrared light-receiving unit ... virtual intelligence shoe 370”).

**Regarding claim 19**

Truong teaches recording device is used to record said data during a period of use by a user of said joint-enclosing device, comprising downloading said recording data into said computer for analysis (col. 5 lines 65-67, “The information can deliver ... web-site services 450 or mailing”).

5. Claims 3-5 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Truong in view of Fyfe and further in view of Brown and further in view of Applicant Admitted Prior Art (AAPA).

**Regarding claims 3**

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Truong, Fyfe and Brown do not teach using of interpolation techniques to completely map stresses and accelerations experience by a knee over a period of time. However, AAPA teaches the use of interpolation techniques to analyze data over a period of time (specification, paragraph at the bottom of page 5 on amendment filed 10/9/2003, "One of ordinary skill ... of the modeling process"). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the interpolation techniques of AAPA with the computerized method of because it would provide for analyzing sensory data with interpolation techniques in order to provide an optimal design for the virtual orthodic.

**Regarding claim 4**

AAPA teaches the use of interpolation data to obtain an interpolated map (specification, paragraph at the bottom of page 5 on amendment filed 10/9/2003, "One of ordinary skill ... of the modeling process").

**Regarding claim 5**

AAPA teaches the use of interpolation map to directly design the virtual orthodic in an optimal manner (specification, paragraph at the bottom of page 5 on amendment filed 10/9/2003, "One of ordinary skill ... of the modeling process").

**Regarding claim 8**

AAPA teaches regression is used as a part of the modeling technique (specification, paragraph at the bottom of page 5 on amendment filed 10/9/2003, "One of ordinary skill ... of the modeling process").

**Regarding claim 9**

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AAPA teaches expert systems or fuzzy logic is used as a part of the modeling technique (specification, paragraph at the bottom of page 5 on amendment filed 10/9/2003, "One of ordinary skill ... of the modeling process").

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner *Thomas Pham*; whose telephone number is (703) 305-7587 or the new number (571) 272-3689 beginning on October 2004, Monday - Friday from 8:00 AM - 5:00 PM EST or contact Supervisor *Mr. Anthony Knight* at (703) 308-3179 (or 571 272-3687 starting Oct. 2004).


Any response to this office action should be mailed to: **Commissioner for Patents, P.O. Box 1450, Alexandria VA 22313-1450**. Responses may also be faxed to the **official fax number (703) 872- 9306**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**Thomas Pham**  
*Patent Examiner*

TP

August 26, 2004

  
**Anthony Knight**  
**Supervisory Patent Examiner**  
**Group 3600**